

### **Remarks**

Applicant believes that independent claim 18, as well as claims 19-22 that depend from claim 18, are in condition for allowance because the claims are not rejected over any prior art, and because the indicated Section 112(2) rejection is directed only to limitations of independent claim 1. Applicant further believes that claims 1-11 and 17 are allowable because the Section 112(2) rejection of these claims is improper (the limitations have clear antecedent basis). The Section 102 and 103 rejections are also improper because the Office Action has erroneously equated functional and structural characteristics of the claimed device with “product-by-process” limitations, and has improperly relied upon an inherency-based argument without citing a reference that discloses all of the claim limitations. The following addresses these and other matters in greater detail.

The instant Office Action dated June 18, 2008 indicated that claims 1-11 and 17-22 stand rejected under 35 U.S.C. §112(2); claims 1-7 and 9-11 stand rejected under 35 U.S.C. §102(b) over Ovshinsky *et al.* (US Patent No. 5,912,839); and claim 8 stands rejected under 35 U.S.C. §103(a) over Ovshinsky. Applicant traverses all rejections, and does not acquiesce to any averments made in the Office Action.

The Section 112(2) rejection of claim 18-22 should be removed because the Office Action has not identified any issue with these claims. While claims 18-22 are listed in the statement of rejection, the body of the rejection only addresses limitations in claim 1; no issue has been identified with independent claim 18 or claims 19-22 that depend therefrom. Furthermore, claim 18 does not include the limitations that the Section 112(2) rejection is based upon. In this regard, Applicant understands that there is no (proper) Section 112(2) rejection of claims 18-22. As these claims are not rejected under any prior art, Applicant believes that these claims are allowable.

The section 112(2) rejection of claims 1-11 and 17 is improper because the limitations upon which the “antecedent basis” rejection is based (“crystalline and amorphous materials” at line 3 of claim 1) are introduced for the first time at line 3 of claim 1, do not refer back to previous limitations and are fully supported. These limitations recite characteristics of the claimed phase change material, which is “changeable between a first phase and a second phase via crystallization initiating at an interface between crystalline

and amorphous materials.” Support for these limitations may be found, for example, at pages 6:27-30 and 7:14-17.

In view of the above discussion regarding the impropriety of the Section 112(2) rejection, Applicant believes that claim 17 is allowable because it is not the subject of either of the remaining Section 102 and 103 rejections.

Applicant respectfully traverses the Section 102(b) rejection of claims 1-7 and 9-11 because the Office Action has improperly asserted that the claim limitations directed to a phase change material are “product by process” limitations, and has further improperly relied upon an unsupported inherency-type argument without citing correspondence to all of the claim limitations. Specifically, claim 1 recites “a phase change material being changeable between a first phase and a second phase via crystallization initiating at an interface between crystalline and amorphous materials.” The cited claim limitations are therefore not product by process limitations (*i.e.*, the phase change material is not manufactured by the referenced crystallization); rather, the phase change material exhibits phase transition characteristics as claimed. These cited claim limitations are also not intended use limitations as suggested at page 4 of the Office Action; they are specific, functional characteristics of the claimed phase change material.

The Office Action’s assertion that the claimed phase transition characteristics are “inherent” is also improper because no reference has been cited in support of the alleged inherent features. As is consistent with the M.P.E.P. and applicable law, Applicant submits that without such evidence, the Section 102 rejection cannot be maintained. Moreover, Applicant believes that the allegedly “inherent” properties would not be present in the cited ‘839 reference because the reference makes use of materials and approaches that are wholly different in nature and operation, relative to the claimed invention. As discussed previously, the ‘839 reference discloses a memory element that exhibits a stepped phase change approach using a material that crystallizes to some degree with each of several pulses, and that changes resistance states in response to a sufficient number of pulses (*see, e.g.*, column 12:29-41). Therefore, the Office Action has not shown that it would be “inherent” that the step-changing material in the ‘839 reference would rapidly crystallize via crystallization that is initiated as claimed (*i.e.*, which would result in a rapid phase change).

Applicant further traverses the Section 102(b) rejection over dependent claims 2-7 and 9-11 because the Office Action has not provided correspondence to multiple claim limitations. For instance, regarding claim 2, the Office Action has not attempted to show any correspondence to the claimed growth rate. Similarly, the Office Action has not attempted to show correspondence to various claimed compositions and materials (*e.g.*, as in claim 3 and others). For example, while the Office Action cites to certain examples for a Te-Ge-Sb alloy in the '839 reference, the cited discussion fails to disclose the claimed ranges with specificity and therefore is insufficient to anticipate these claimed limitations (*see, e.g.*, M.P.E.P. §2131.03). Other limitations are ignored as a whole.

Regarding claim 18, the Office Action has referred to this claim at page 3, but the claim does not stand rejected (claims 17-22 are not listed in the statement of rejection for the Section 102 rejection). Moreover, the mention of claim 18 at page 3 does not include citation to any reference that discloses all of the claim limitations; while certain aspects of FIG. 2 in the '839 reference are listed, no reference is cited as corresponding to the claimed crystallization layer, fast growth phase change material, and resistor. In this regard, the Office Action's discussion of claim 18 is confusing and fails to provide correspondence to all claim limitations.

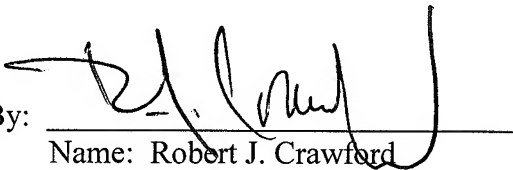
Applicant traverses the Section 103(a) rejection of claim 8 over the sole '839 reference because the '839 reference fails to provide teaching or suggestion as discussed above in connection with the Section 102(b) rejection of claim 1 (from which claim 8 depends). As discussed in Applicant's previous traversals, which the Office Action has not addressed as required under M.P.E.P. 707.07(f), the Office Action provides no rationale, from the prior art or otherwise, in support of the notion that one of skill in the art would somehow have optimized the claimed invention using routine skill where there is no suggestion to do so. Therefore, Applicant submits that the Section 103 rejection of claim 8 is improper and should be removed.

In view of the above, Applicant believes that each of the rejections has been overcome and the application is in condition for allowance. Should there be any remaining issues that could be readily addressed over the telephone, the Examiner is asked to contact the agent overseeing the application file, Peter Zawilski, of NXP Corporation at (408) 474-9063.

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